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Fahr. approaches to $C_{40} H_{34} O_8$; there being, however, a slight excess of oxygen, and water not being the only volatile compound driven off.

The resin of opoponax, when thus heated the hydrogen, as in that of retin asphalt, remains nearly constant $= C_{40} H_{25} O_{14}$, approaching to $C_{40} H_{25} O_{12}$. The same is the case with the resin of assafetida ($= C_{40} H_{25} O_{10}$), which by prolonged heating at about 250° Fahr., becomes $C_{40} H_{26} O_9$. These observations when multiplied are likely to assist materially in leading to *rational* formulæ, expressive of the molecular constitution of the resins.

In reference to the general questions, with a view to the solution of which the author undertook this investigation, he concludes :

1. That the resins are not to be considered as different compounds of one and the same radical, but rather as analogous groups of compounds of analogous radicals.

2. That as far as our present knowledge extends, all the *true* resins are capable of being represented by irrational formulæ, in which C_{40} is a constant quantity.

3. That the analyses contained in the present paper render necessary a slight modification in the general formulæ previously announced. The formula for the group of which colophony is the type, being $C_{40} H_{32} \pm x Oy$; and that for the group of which gamboge or dragon's blood is the type, being $C_{40} H_{24} \pm x Oy$.

The author announces a further continuation of these researches, in which the constitution of other resins will be given, and the relations of the resins to certain chemical reagents will be explained and illustrated.

The Society then adjourned over the Easter Recess, to meet again on the 30th instant.

April 30, 1840.

The MARQUIS of NORTHAMPTON, President, in the Chair.

His Royal Highness Prince Albert, of Saxe Coburg and Gotha, K.G., was proposed as a Fellow of the Royal Society by the President, seconded by John W. Lubbock, Esq., V.P. and Treasurer R.S., and, being put to the ballot, H.R.H. was elected a Fellow of the Royal Society.

Lord Lyttleton was also, pursuant to a notice given at the last meeting, put to the ballot, and elected a Fellow of this Society.

Thomas Wharton Jones, Esq., and John Grant Malcolmson, M.D., were also balloted for, and duly elected into the Society.

The following communications were read :—

1. A Letter from Sir John Barrow, Bart., V.P., addressed to the President, accompanying a series of Magnetic Observations made on

shore, and on board Her Majesty's ships 'Erebus' and 'Terror,' under the direction of Captain James Clark Ross, R.N., together with a Series of Observations made on the temperature and specific gravity of the ocean at various depths, and at the surface, namely,

"Observations of the magnetic intensity on shore, and on board H.M.S. Erebus, with needle F. 1.

"Magnetic dip observations on shore, and on board H.M.S. Erebus, with needle F. 1.

"Observations for the magnetic dip on shore, and on board H.M.S. Terror.

"Observations of the magnetic dip by needle F. C. 5. on shore, and on board H.M.S. Terror.

"Observations in magnetic intensity by needle F. C. 5. on shore, and on board H.M.S. Terror."

The whole of these observations are up to the 31st December, 1839. They are transmitted to the Royal Society from the Lords Commissioners of the Admiralty.

2. Postscript to Major Sabine's paper, entitled "Contributions to Terrestrial Magnetism," which was read at the last meeting; containing an extract from a letter from Capt. James Clark Ross, commanding the Antarctic expedition, dated from St. Helena, February 9th, 1840; noticing the success which had attended the employment of Mr. Fox's instrument, in observations of the magnetic dip and intensity on shipboard.

3. "A few remarks on a Rain Table and Map," drawn up by Joseph Atkinson, Esq. Communicated by P. M. Roget, M.D., Sec. R.S.

The table and map which accompany this paper exhibit the average annual depth of rain falling in different places in Great Britain.

4. "Extracts from a Meteorological Journal kept at Allenheads, in the county of Northumberland," by the Rev. W. Walton, F.R.S.

The general result of these observations, which were recorded twice each day, namely, at 9 A.M., and at 3 P.M., during the whole of the year 1839, is, that the mean temperature taken at those times was $44^{\circ} 8'$; the mean height of the barometer, corrected and reduced to the temperature of 32° , was 28.401 inches, and the quantity of rain in the year was 55.71 inches. The author subjoins several remarks on the conclusions deducible from an examination of the tables.

5. "Description of an Astronomical Clock invented by the late Captain Henry Kater, F.R.S.," drawn up from his own memorandums by his son Edward Kater, Esq. Communicated by Sir John F. W. Herschel, Bart., V.P.R.S.

The great object aimed at by Captain Kater in the construction of the escapement of a chronometer, is to communicate equal impulses